

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 October 2003 (16.10.2003)

PCT

(10) International Publication Number  
**WO 03/085323 A1**

(51) International Patent Classification<sup>7</sup>: F23J 1/02, F23L 15/00

(21) International Application Number: PCT/EP03/01831

(22) International Filing Date: 7 April 2003 (07.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
MI2002A000744 9 April 2002 (09.04.2002) IT

(71) Applicant (for all designated States except US): MAGALDI RICERCHE E BREVETTI S.R.L. [IT/IT]; Via Irno, 219/bis, I-84135 Salerno (IT).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor; and

(75) Inventor/Applicant (for US only): MAGALDI, Mario [IT/IT]; Viale del Bosco, 22, I-84100 Salerno (IT).

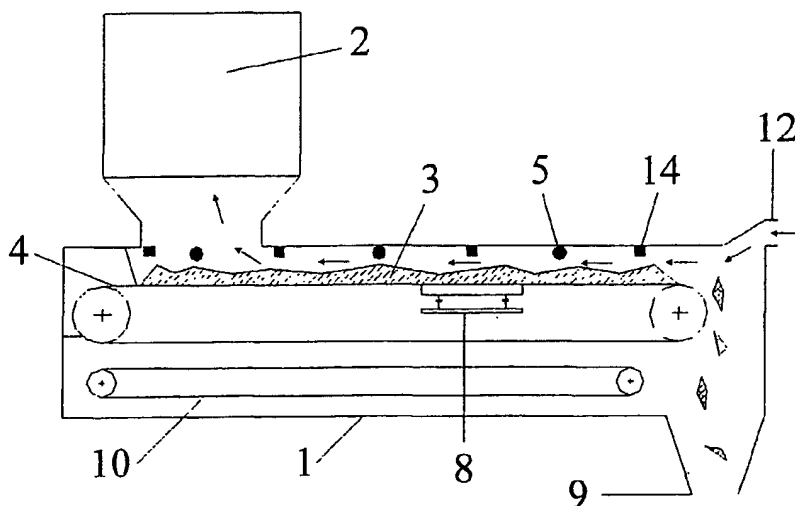
(74) Agent: RICCARDI, Sergio; Via M. Melloni, 32, I-20129 Milano (IT).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AIR AND WATER CONVEYOR/COOLER FOR HOT LOOSE MATERIALS



(57) Abstract: The present invention regards a conveyor/cooler for hot loose materials produced by boilers and various industrial processes, mainly comprising a sealed metal container (1) connected to a boiler (2) or to an incinerator from which, thanks to the gravitational effect, the material (3) that leaves the combustion chamber falls. Inside of said container (1) a metal conveyor belt (4) is placed wherein the hot loose material (3) to be cooled is placed. The cooling of the material (3) occurs through the feeding of an air flow picked up from the outside environment integrated with atomized water sprinkled on the hot material (3) through a system of injecting nozzles (5) installed inside of the metal container (1).

WO 03/085323 A1

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/01831

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 F23J1/02 F23L15/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F23J F23L B01J B65G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 230 633 B1 (MAGALDI MARIO ET AL) 15 May 2001 (2001-05-15)	1-8
Y	column 2, line 30 - line 35 column 2, line 49 - line 60 column 3, line 25 - line 38 column 4, line 13 - line 30 column 4, line 42 - line 63 column 5, line 34 - line 41 column 5, line 59 - column 6, line 5	11,12, 16-18
A	---	9,10
Y	EP 0 931 981 A (MAGALDI RICERCHE E BREVETTI S) 28 July 1999 (1999-07-28) column 3, line 45 - column 4, line 20 figure 5 --- -/--	16-18

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

16 July 2003

Date of mailing of the international search report

23/07/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl  
Fax: (+31-70) 340-3016

Authorized officer

Mougey, M

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 03/01831

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	FR 2 731 064 A (GEC ALSTHOM STEIN IND) 30 August 1996 (1996-08-30) page 7, line 5 - line 11 page 7, line 25 -page 8, line 8 ---	11
Y	EP 0 972 988 A (VON ROLL UMWELTECHNIK AG) 19 January 2000 (2000-01-19) column 7, line 13 - line 26 ---	12
X	DE 37 31 140 A (SEKIMIC KRESIMIR DIPL ING ;SEKIMIC JOSIP (YU)) 24 March 1988 (1988-03-24) column 2, line 45 - line 51 column 7, line 45 - line 53 ---	1
A	WO 98 53252 A (GONG HUIQIN) 26 November 1998 (1998-11-26) abstract ---	1, 12
A	DE 642 967 C (SEYBOTH FEUERUNG G M B H) 20 March 1937 (1937-03-20) page 1, line 53 -page 2, line 4 ---	1
A	WO 01 55659 A (JANKKILA MARTTI ;NIEMELAE PEKKA (FI); OUTOKUMPU OY (FI); VAAEENAEN) 2 August 2001 (2001-08-02) claim 1 page 2, paragraph 3 page 4, paragraph 1 -----	1, 16

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/01831

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6230633	B1	15-05-2001	IT MI951310 A1 DE 69603965 D1 DE 69603965 T2 DK 836697 T3 EP 0836697 A1 GR 3031935 T3 JP 11508026 T PL 324112 A1 SK 175597 A3 AT 183817 T CA 2224145 A1 CN 1188533 A ,B CZ 9704061 A3 WO 9700406 A1 ES 2138353 T3	19-12-1996 30-09-1999 20-04-2000 27-03-2000 22-04-1998 31-03-2000 13-07-1999 11-05-1998 07-10-1998 15-09-1999 03-01-1997 22-07-1998 15-07-1998 03-01-1997 01-01-2000
EP 0931981	A	28-07-1999	IT MI980051 A1 EP 0931981 A2	15-07-1999 28-07-1999
FR 2731064	A	30-08-1996	FR 2731064 A1	30-08-1996
EP 0972988	A	19-01-2000	CH 692773 A5 DE 59904259 D1 EP 0972988 A1 JP 2000081208 A	31-10-2002 20-03-2003 19-01-2000 21-03-2000
DE 3731140	A	24-03-1988	YU 161886 A1 CS 8706626 A2 DE 3731140 A1 HR 930286 A1 HR 940188 A1 PL 267800 A1 SU 1644726 A3	31-12-1988 15-10-1991 24-03-1988 28-02-1997 30-04-1996 21-07-1988 23-04-1991
WO 9853252	A	26-11-1998	AU 7519098 A WO 9853252 A1 CN 1095534 B	11-12-1998 26-11-1998 04-12-2002
DE 642967	C	20-03-1937	NONE	
WO 0155659	A	02-08-2001	FI 20000200 A AU 3028201 A BR 0107924 A CN 1397003 T EP 1252473 A1 WO 0155659 A1 NO 20023624 A US 2003054315 A1	01-08-2001 07-08-2001 10-12-2002 12-02-2003 30-10-2002 02-08-2001 30-07-2002 20-03-2003